www.kem-kueppers.com
info@kem-kueppers.com

Küppers Elektromechanik GmbH

Certified according to DIN EN ISO 9001

Technical Datasheet

IF* and VIE*-** (Ex)

Inductive Pickups and Amplifiers for Extreme Fluid Temperatures

Technical Data

Supply voltage U_B	+7 up to 29 V DC
Quiescent current	< 4 mA
Frequency range	7 up to 3,000 Hz according to flow meter
Ambient temperature	–20°C up to +50°C
Medium temperature (not relevant for type VIEG)	max. + 120°C with a distance of at least 25mm max. + 150°C with a distance of at least 65mm between flow meter and amplifier housing
Input impedance	< 100Ω
Input	0.5 up to 500 mV
Electrical connection	One or two 3-pin terminals for inductive pickup, amplifier, supply and output signals, max. wire size 2.5mm²
Housing	Aluminium, L = 64, W = 58, H = 37 (mm) one or two cable sleeves
Pickup housing	Stainless steel as per DIN 1.4104
Weight	approx. 400g
Dimensions	see drawing
Ingress protection	IP65 (DIN 40050)
Ex-protection 100a	II 2 G EEx ia IIC T6, BVS 03 ATEX E 207
Electrical Connection	frequency output, selectable: voltage level three-wire NPN/PNP a) three-wire active NPN high level: U_{high} > UB – 0.6V – (2.6kΩ, I_{out}) low level: U_{low} < 0.6V + (1.3kΩ, I_{out}) b) three-wire passive NPN/open collector high level: U_{high} > U – (1.3kΩ, I_{out}) low level: U_{low} < 0.6V + (1.3kΩ, I_{out}) U is applied at the output, max. 29V c) three-wire active PNP (not available for Ex-versions) high level: U_{high} > U – 0.6V – (150Ω, I_{out}) low level: U_{low} = blocking Imax. = 60mA; Pmax. an Rs = 1W; Rs = 150Ω current level two-wire DIN 19234 NAMUR high level: I_{high} > 2.2mA low level: I_{low} < 1.1mA

Safety-relevant parameters (only for Ex-versions)

a) three-wire active NPN, version VIE-3A*

Input:	terminal 1 and 2:	$U_{max.}$ = 30 V	$I_{max.}$ = 150 mA	
		R_i = 1,2 kΩ	C_i = 0	Li = 0
Output:	terminal 2 and 3:	$U_{max.}$ = 30 V	$I_{max.}$ = 25 mA	$P_{max.}$ = 106 mW
		R_i = 1,2 kΩ	C_i = 0	L_i = 0

b) three-wire passive NPN/open collector, version VIE-3P*

Input:	terminal 1 and 2:	$U_{max.}$ = 30 V	$I_{max.}$ = 150 mA	
		R_i = 1,2 kΩ	C_i = 0	L_i = 0
Output:	terminal 2 and 3:	$U_{max.}$ = 30 V	$I_{max.}$ = 500 mA	
		R_i = 1,2 kΩ	C_i = 0	L_i = 0

c) two-wire DIN 19234 NAMUR, version VIE-2N*

In-, output:	terminal 1 and 2:	$U_{max.}$ = 30 V	$I_{max.}$ = 150 mA	$P_{max.}$ = 175 mW
		C_i = 100 nF	L_i = 0	R_i = 0
	terminal 2 and 3:	$U_{max.}$ = 30 V	$I_{max.}$ = 500 mA	
	terminal 3: n. c.			

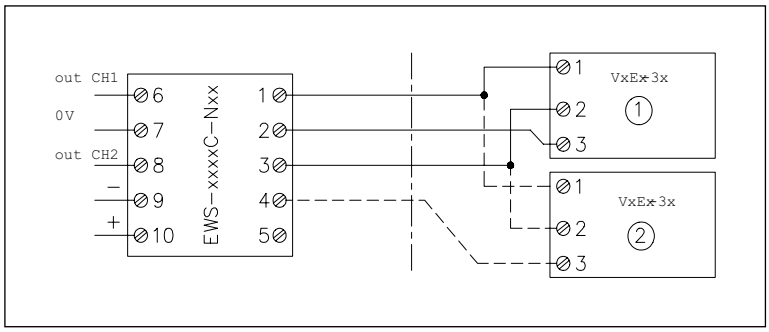
*d) version VIEG-***

Input:	terminal 5 and 6:	$U_{max.}$ = 0,8 V	$I_{max.}$ = 2 mA	
		R_i = 15 Ω	C_i = 0	Leq = 10 mH

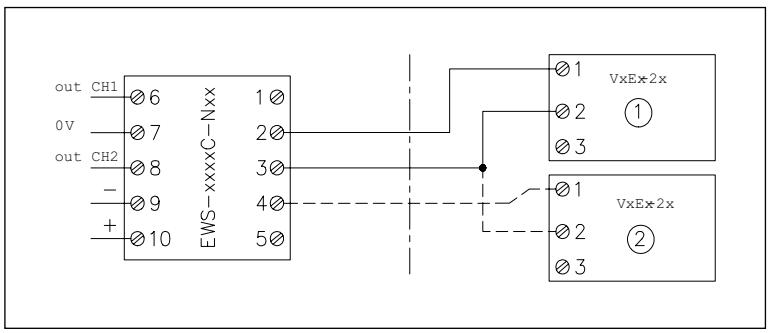
Connect only pickups of the following safety-relevant values to input terminals 5 and 6:

$U_{max.}$ = 30 V	$I_{max.}$ = 65 mA
$P_{max.}$ = 25 mW	L/R < 2,4 mH/Ω

Examples for connecting Ex-versions



three-wire connection
EWS-xxxxC-Nxx with one or two off VIE*-3*



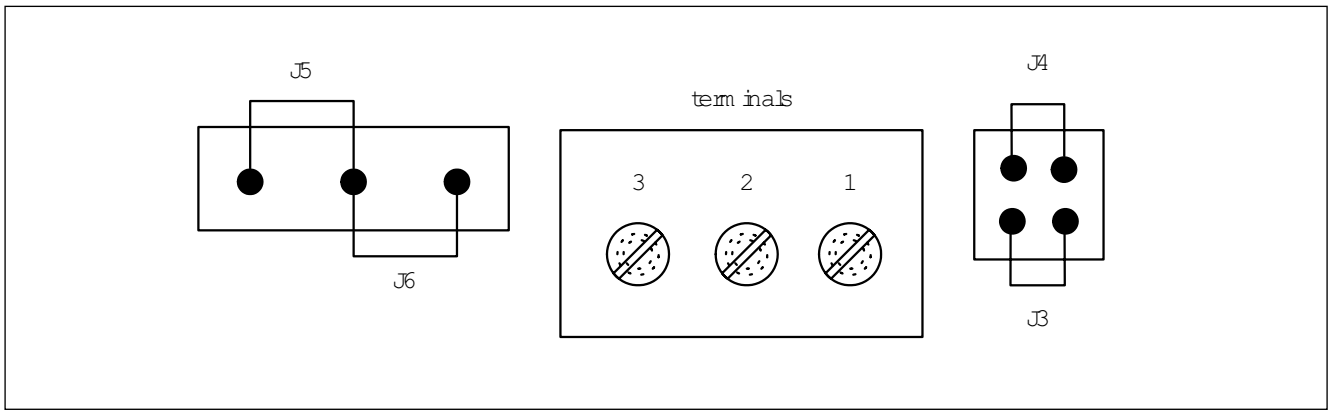
two-wire connection
EWS-xxxxC-Nxx with one or two off VIE*-2*

EWS = intrinsically safe power supply and separation amplifier

Adjusting the output mode

The output mode is adjustable via jumpers located on the amplifier board. The table below is also printed on the inside of the housing top. With Ex-versions the output mode is adjusted by KEM according to customers' specifications and cannot be changed afterwards.

output mode	*Jumper J3*	*Jumper J4*	*Jumper J5*	*Jumper J6*
two-wire (current level)	off	on	off	off
three-wire active NPN	on	off	off	on
three-wire active PNP (PLC)	on	off	on	off
three-wire passive NPN	off	off	off	on

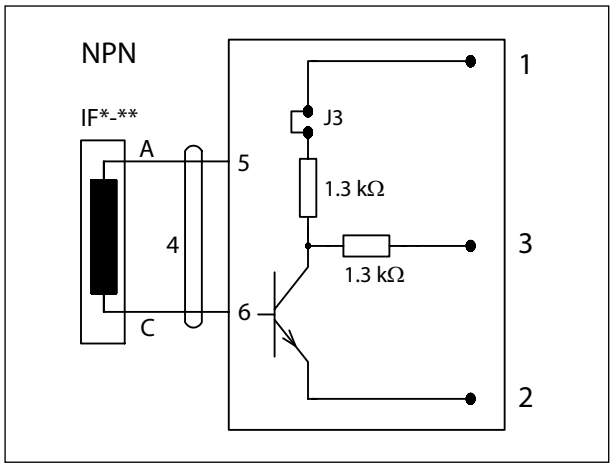


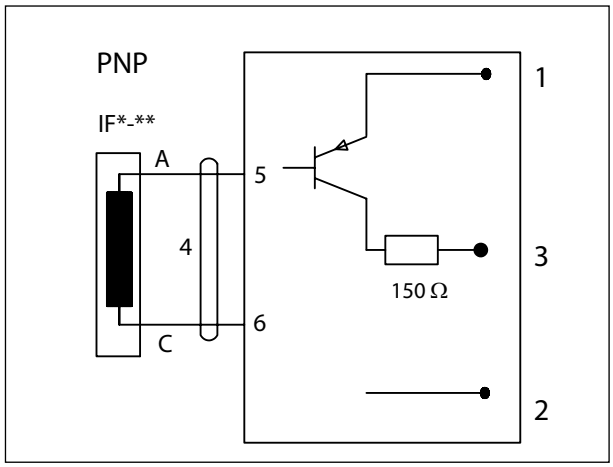
Electrical connection

The electrical connection is to be effected via one or two 3-pin terminals inside the amplifier which are accessible via cable sleeves 4–6 mm.

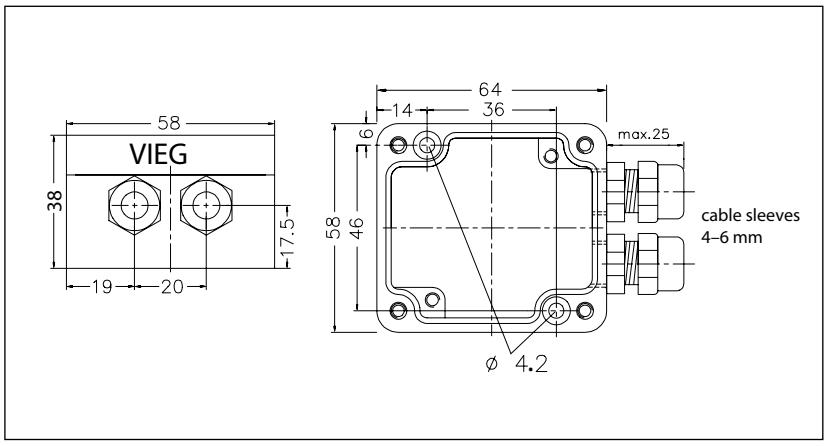
pin connection compact versions:
1 = +UB
2 = 0V/GND
3 = output signal

pin connections separated versions type VIEG
1 = +UB
2 = 0V/GND
3 = output signal
4 = 0V/GND/shield
5 = signal IF-coil
6 = signal IF-coil

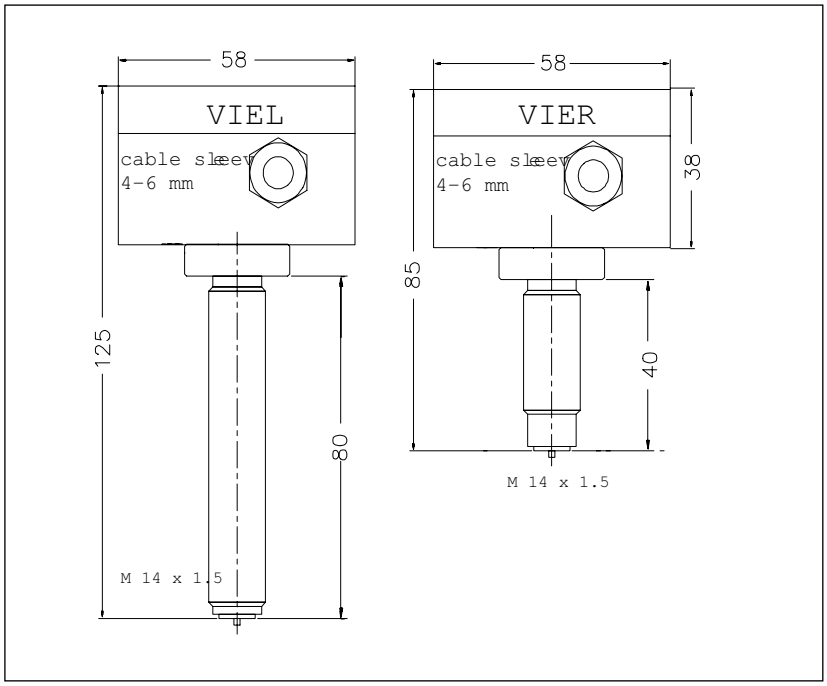




Dimensional drawing (mm)



VIEG
separated version without pickup



VIE*
compact version with pickup

Ordering Information

VIE*

G = separated version: amplifier without pickup
K = short version with pickup for ZHM 02–04 and HM series depending on size
L = long version with pickup for ZHM 02–07 and HM series depending on size
R = short version with pickup for ZHM 01 and SRZ series
S = long version with pickup for ZHM 01 and SRZ series up to +150°C fluid temperature

VIE* - ** Ex — **Ex-protection ATEX100 Ex II 2 G EExia IIC T6**

2N = two-wire DIN 19234 NAMUR
3A = three-wire active NPN
3P = three-wire passive NPN/open collector

G = separated version: amplifier without pickup
K = short version with pickup for ZHM 02–04 and turbines depending on size
L = long version with pickup for ZHM 02–07 and turbines depending on size
R = short version with pickup for ZHM 01 and SRZ-series
S = long version with pickup for ZHM 01 and SRZ series up to +150°C fluid temperature

IF* - ** Ex — **Ex-protection ATEX100 Ex II 2 G EExia IIC T6**

PG = cable sleeves version with 3 meter cable
HT = HT-version up to 240°C
HTK = HT-version up to 350°C (no Ex protection)

K = short version for ZHM 02-04 and turbines
L = long version ZHM 02-07 and turbines
R = short version for ZHM 01

Notes on Installation

The following has to be adhered to:

a. Installation instructions for electrical devices
nstallation instructions for associated intrinsically-safe devices
The »Special conditions for safe use« as per EC-Type Examination Certificate

b. The amplifier has to be installed in a way that the max. ambient temperature does under no circumstances exceed +50°C (consider self heating).

c. With cables care should be taken, that the max inductivity and capacity of the respective voltage or gas group are not exceeded

d. Exceeding or falling below the regular measuring range will cause invalid frequency output signals.

e. Shielded cables are to be used as connecting lines.

f. Generally, supplied units have to be connected by an expert according to EMC stipulations.

g. Disconnect power supply before soldering the electrical connector.

Marking

Two-wire connection

KEM Küppers Elektromechanik GmbH
CE 0123 Ex II 2 G EEx ia IIC T6

BVS 03 ATEX E 207
V*E*2* Nr. 12345678
-20°C ≤ Ta ≤ 50 °C
KL 1/2 Ui =30 V, Ii = 150 mA, Pi = 175 mW, Ci = 100 nF, Li = 0
KL 2/3 Ui =30 V, Ii = 500 mA
KL 5/6 Ui = < 0,8 V, Ii < 2 mA, Ri = 15 Ω, Ci = 0, Ii = 10 mH 1)
KL 1 = Ub, 2 = 0 V, 3 = n.c.
KL 4 = Schirm, 5/6 = Spule[1]

Three-wire connection

KEM Küppers Elektromechanik GmbH
CE 0123 Ex II 2 G EEx ia IIC T6

BVS 03 ATEX E 207
V*E*-3* Ser.Nr. 12345678
-20°C ≤ Ta ≤ 50°C
KL 1/2 Ui =30 V, Ii = 150 mA, Ri = 1,2 kΩ, Ci = 0, Li = 0
KL 2/3 Ui =30 V, Ri = 1,2 kΩ, Ci = 0, Li = 0
VIE*-3A: Ii = 25 mA, Pi = 106 mW
VIE*-3P: Ii = 0,5 A
KL 5/6 Ui = < 0,8 V, Ii < 2 mA, Ri = 15 Ω, Ci = 0, Ii = 10 mH 1)
KL 1 = Ub, 2 = 0 V, 3 = output
KL 4 = Schirm, 5/6 = Spule[1]

1) only type VIEG
The sticker indicates year of manufacture and person in charge of test.

Contact

KEM Headquarter

Liebigstraße 5
85757 Karlsfeld
Germany

T. +49/8131/ 59 39 1-0
F. +49/8131/ 92 60 4

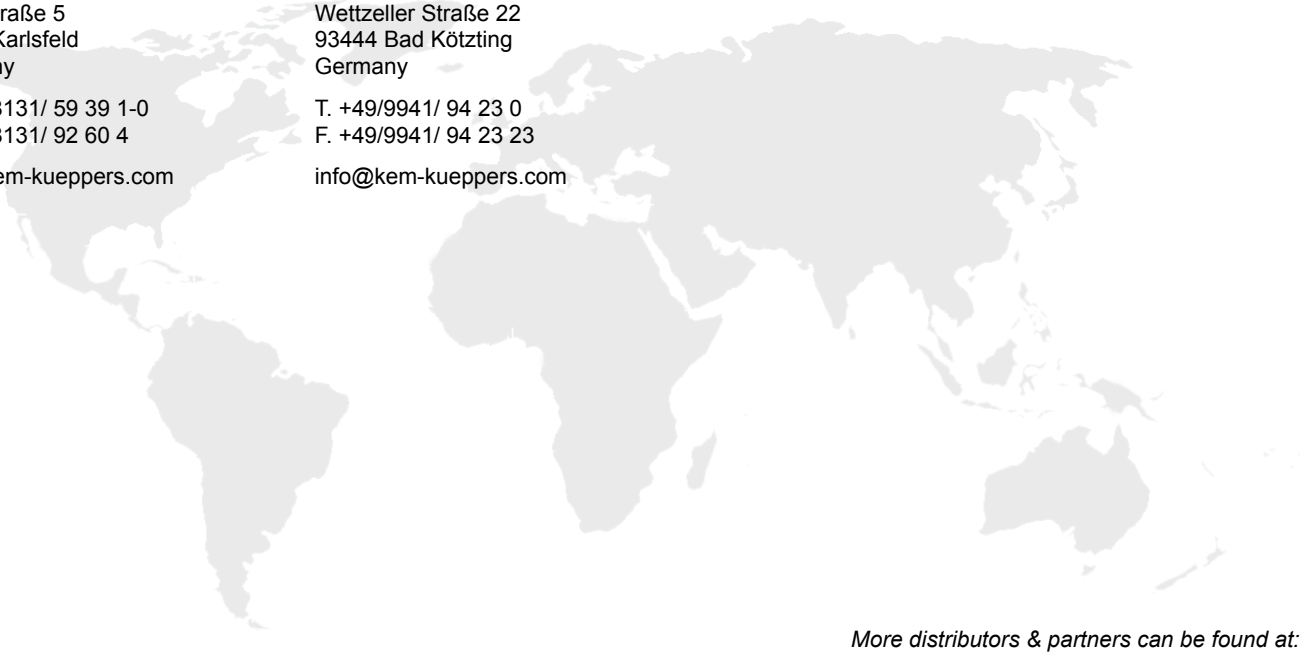
info@kem-kueppers.com

KEM Service & Repairs

Wettzeller Straße 22
93444 Bad Kötzting
Germany

T. +49/9941/ 94 23 0
F. +49/9941/ 94 23 23

info@kem-kueppers.com



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www.kem-kueppers.com
info@kem-kueppers.com